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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,710	06/22/2006	Kris V. Kumar	128346.33301	9802

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Diamond Innovations
6325 Huntley Road
Worthington, OH 43229

EXAMINER	
GRANT, ALVIN J	
ART UNIT	PAPER NUMBER
3723	

MAIL DATE	DELIVERY MODE
11/25/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,710	KUMAR ET AL.	
	Examiner	Art Unit	
	ALVIN J. GRANT	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,8,10,12-14,18-22,31 and 36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,8,10,12-14,18-22,31 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/13/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 5, 14, 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henmi et al. 4,989,375 in view of Sheu et al. 5,025,547.

Henmi et al. discloses a method of grinding a ferrous roll having a rotating roll surface **(7:31-37)** with a rotating grinding wheel **(10)**, the ferrous roll, the method steps including: mounting a grinding wheel on a machine spindle **(32)** and setting the angle between the grinding wheel rotational axis and roll rotational axis less than about 25 degrees **(Fig. 7, and Table 1)**; and bringing the rotating wheel into contact with a rotating roll surface and traversing the wheel across an axial roll length, while maintaining a ratio of axial taper tolerance to radial wheel wear compensation of greater than 25 **(14:47-15:19)**; bringing the rotating wheel into contact with a rotating roll surface and traversing the wheel across an axial roll length, while maintaining a ratio of axial taper tolerance on wheel wear compensation of greater than 10 **(12:47-13:17)**; and prohibiting thermal degradation **(8:16-28)**. Henmi et al. does not specifically disclose a surface roughness of less than 5 microns. Sheu et al. discloses a roll

grinding process **(Fig. 5)** that achieves a surface roughness of less than 3 micrometers so as to achieve a polished finish. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have ground Hindi's roll to a surface finish of less than 3 micrometers as taught by Sheu et al. so as to achieve a polished finish.

Claims 8, 10, 12, 13, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henmi et al. in view of Sheu et al. and in further view of Mori et al. 6,306,007.

Hemi et al. as modified is described above. **Referring to claims 8-10 and 12**, the modified Henmi et al. does not specifically disclose a cubic boron nitride system having a vitreous bond. Mori et al. discloses a cubic boron nitride system having a vitreous bond so as provide effective grinding with the abrasive particles without scratching the surface of the workpiece. It would have been obvious to one having ordinary skill in the art at time the invention was made to have made to have made the modified Henmi's apparatus out of cubic boron nitride having a vitreous bond as taught by Mori et al. so as provide effective grinding with the abrasive particles without scratching the surface of the workpiece.

Referring to claim 13, Henmi et al. does not specifically disclose the grinding wheel being rotated at 3600-12000 fpm. Mori et al. discloses a grinding wheel being rotated at 3600-12000 fpm so as to minimize the occurrence of chattering marks. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the modified Henmi's apparatus to rotate between 3600 and 12000 fpm

so as to minimize the occurrence of chattering marks.

Referring to claim 18, Henmi does not disclose a grinding ratio of at least 20. Mori et al discloses a grinding ratio of at least 20 so as to prolong the grinding effort with a lightweight (CBN) wheel without adversely impacting the system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made Henmi et al.'s apparatus to have a G ratio of at least 20 as taught by Mori et al. so as to the grinding effort with a lightweight (CBN) wheel without adversely impacting the system.

Referring to claims 21, 31 and 36, Henmi et al. does not specifically disclose a grinding wheel traverse rate of at least 50 mm/min. and a grinding wheel rotational speed and said mill roll rotational speed is varied in an amount of +/- 1 to 40% in amplitude, with a period of 1 to 30 seconds. Mori et al. discloses a grinding wheel traverse rate of at least 50 mm/min. and a grinding wheel rotational speed and said mill roll rotational speed is varied in an amount of +/- 1 to 40% in amplitude, with a period of 1 to 30 seconds so as to provide the capability of optionally changing the grinding rate and optimizing the grinding process. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made Henmi et al.'s apparatus to have the a grinding wheel traverse rate of at least 50 mm/min. and a grinding wheel rotational speed and said mill roll rotational speed is varied in an amount of +/- 1 to 40% in amplitude, with a period of 1 to 30 seconds so as to provide the capability of optionally changing the grinding rate and optimizing the grinding process.

Response to Arguments

2. Applicant's arguments filed 9/8/09 have been fully considered but they are not persuasive.

- In response to Applicant's arguments that US Patent 4,989,375 to Henmi et al. does not disclose the claimed limitations and that the limitations were not identified, these limitations have been identified.
- In response to Applicant's arguments that the combinations of US Patent 5,025,547 to Sheu et al. and US Patent 6,306,007 to Mori et al. with Henmi et al. is improper since Henmi et al. the references do not show the teachings is moot in view of the above.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALVIN J. GRANT whose telephone number is (571)272-4484. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. J. G./
Examiner, Art Unit 3723

/Joseph J. Hail, III/

Supervisory Patent Examiner, Art Unit 3723